

NATIONAL TRANSPORTATION SAFETY BOARD PILOT/OPERATOR AIRCRAFT ACCIDENT/INCIDENT REPORT

This form to be used for reporting civil and public aircraft accidents and incidents

BASIC INFORMATION

Accident/Incident Location

Nearest City/Place: Kaneville State: IL

ZIP: 60144 Country: USA

Latitude: 41.87 N Longitude: 88.58 W

(Enter in decimal degrees or degrees:minutes:seconds)

Accident/Incident Date/Time

Date: 07/08/2019 Local Time: 4:00 PM
mm/dd/yyyy

Time Zone: Central

Collision with Other Aircraft: ☐ Midair ☐ On-ground ☒ None

AIRCRAFT INFORMATION

Registration Number: N112EZ

Manufacturer: Knight Wilcox

Model: Varieze

Serial Number: 43

Year of Manufacture: 1982

Amateur-Built: ☒ Yes ☐ No If Yes: ☒ Kit/Plans ☐ Original Design Make: Rutan Model 33 Vari-Eze

- ☐ IFR-Equipped and Certified
☐ Commercial Space Flight
☐ Unmanned Aircraft

Maximum Gross Weight: 1110 lbs

Weight at Time of Accident/Incident: 1010 lbs

Number of Seats: 2 Flight Crew Seats: 1

Cabin Crew Seats: n/a Passenger Seats: 1

Number of Engines: 1

Category of Aircraft

- ☒ Airplane
☐ Balloon
☐ Blimp/Dirigible
☐ Glider
☐ Gyroplane
☐ Helicopter
☐ Powered Lift
☐ Rocket
☐ Ultralight
☐ Unknown

Type of Airworthiness Certificate

(Check all that apply)

Standard

- ☐ Normal
☐ Aerobatic
☐ Balloon
☐ Commuter
☐ Transport
☐ Utility

Special

- ☐ Restricted
☐ Limited
☐ Provisional
☐ Special Flight
☒ Experimental
☐ Special Light-Sport
☐ Experimental Light-Sport

- ☐ Certificate of Authorization or Waiver (COA)
☐ None ☐ Unknown

Landing Gear

(Check all that apply)

- ☒ Retractable

- ☒ Tricycle ☐ Tailwheel
☐ Amphibian ☐ High Skid
☐ Emergency Float ☐ Skid
☐ Float ☐ Ski
☐ Hull ☐ Ski/Wheel
☐ Other Launch/Recovery System
☐ None ☐ Unknown

Engine Type (Select one)

- ☒ Reciprocating ☐ Liquid Rocket
☐ Turbo Shaft ☐ Solid Rocket
☐ Turbo Prop ☐ Hybrid Rocket
☐ Turbo Jet ☐ None
☐ Turbo Fan ☐ Unknown
☐ Electric

Fuel System Type (Reciprocating)

- ☒ Carburetor ☐ Fuel-Injected

Engine	Engine Manufacturer	Engine Model/Series	Manufacturer's Serial Number	Date of Mfg. mm/dd/yyyy	Rated Power ☒ Horsepower or ☐ lbs of Thrust	Total Time (hours)	Time Since: Inspection (hours)	Overhaul (hours)
Eng. 1	Continental	C-85-12	20202-6-12S	Unknown	85	Unknown	14.7	332.7
Eng. 2								
Eng. 3								
Eng. 4								

Last Inspection Type

- ☐ 100-Hour ☐ Continuous Airworthiness
☐ AAIP ☒ Conditional Inspection
☐ Annual ☐ Unknown

Date Last Inspection: 09/25/2018
mm/dd/yyyy

Airframe Total Time: 141.2 hrs

hours measured at (Select one)

- ☐ Last Inspection ☒ Time of Accident/Incident

Type of Maintenance Program (Select one)

- ☐ Annual
☒ Conditional (Amateur-built only)
☐ Manufacturer's Inspection Program
☐ Other Approved Inspection Program (AAIP)
☐ Continuous Airworthiness
☐ Other, specify: _____

Description of Fire Extinguishing System

- ☒ None
☐ Specify: No Fire

Propeller 1

- ☒ Fixed Pitch
☐ Controllable Pitch
☐ Ground Adjustable

Manufacturer: B&T Propeller

Model: 58x73

Propeller 2

- ☐ Fixed Pitch
☐ Controllable Pitch
☐ Ground Adjustable

Manufacturer: _____

Model: _____

ELT Installed: ☒ Yes ☐ No

If Yes:

ELT Manufacturer: ACK

Model or Part No.: Model E-01

TSO No.: ☐ OC91 (121.5 MHz) ☒ OC91a (121.5 MHz)
☐ OC126 (406 MHz)

Was ELT still mounted in aircraft? ☒ Yes ☐ No

Was ELT still connected to antenna? ☐ Yes ☒ No

Did ELT Activate? ☒ Yes ☐ No

If activated:

Did ELT Aid in Locating Aircraft? ☐ Yes ☒ No

If not activated:

- Indicate Reason: ☐ Impact Damage
☐ Fire Damage
☐ Battery Expired/Damaged
☐ Unknown

Additional Equipment (Check all that apply)

- ☒ ADS-B
☐ Airframe Parachute
☐ Angle of Attack Indicator
☐ Autopilot
☐ Data Recorder
☒ Electronic Flight Bag or Handheld Device
☐ Electronic Multifunction Display
☒ Electronic Primary Flight Display
☐ Handheld GPS
☐ Heads Up Display
☒ Onboard Weather
☐ Satellite Tracking Device
☐ Stall Warning System
☐ Video Recording Device
☐ Other, Specify: ADS-B in only

OWNER/OPERATOR INFORMATION**Registered Aircraft Owner**Name: Joseph D. DoughertyCity: WheatonFractional Ownership Aircraft: ☐ Yes ☒ NoState: IL ZIP: 60189Country: USA**Operator of Aircraft**☒ Same As Registered Owner☒ Same Address as Registered Owner

Name: _____

City: _____

Doing Business As: _____

State: _____ ZIP: _____

Air Carrier/Operator Designator (4 Character Code): _____

Country: _____

Operating Certificates Held

(Check all that apply)

- ☒ None
☐ Flag Carrier Operating Certificate (FAR 121)
☐ Supplemental
☐ Air Cargo
☐ Foreign Air Carriers (FAR 129)
☐ Rotorcraft External Load (FAR 133)
☐ Commuter Air Carrier (FAR 135)
☐ On-Demand Air Taxi (FAR 135)
☐ Commercial Air Tour (FAR 136)
☐ Agricultural Aircraft (FAR 137)
☐ Pilot School (FAR 141)
☐ Certificate of Authorization or Waiver (COA)
☐ Commercial Space Transportation
Experimental Permit
☐ Commercial Space Transportation License
☐ Other Operator of Large Aircraft

Regulation Flight Conducted Under

- ☒ FAR 91 ☐ FAR 129 ☐ FAR 415
☐ FAR 103 ☐ FAR 133 ☐ FAR 431
☐ FAR 121 ☐ FAR 135 ☐ FAR 435
☐ FAR 125 ☐ FAR 137 ☐ FAR 437
- ☐ FAR 91 Special Flight
☐ Non-US, Commercial
☐ Non-US, Non-commercial
- ☐ Public Aircraft (Select one)
☐ Armed Forces
☐ Federal
☐ State
☐ Local
☐ Unknown

Revenue Operation for FAR 121, 125, 129, 135

(Select one for each group)

- ☐ Scheduled or Commuter ☐ Domestic
☐ Non-Scheduled or Air Taxi ☐ International
- ☐ Passenger
☐ Cargo
☐ Mail Contract Only

Purpose of Flight for FAR 91, 103, 133, 137

(Select one)

- ☐ Aerial Application ☐ Firefighting ☐ Unknown
☐ Aerial Observation ☐ Flight Test
☐ Air Drop ☐ Glider Tow
☐ Air Race/Show ☐ Instructional
☐ Banner Tow ☐ Other Work Use
☐ Business ☒ Personal
☐ Executive/Corporate ☐ Positioning
☐ External Load ☐ Skydiving
☐ Ferry

Revenue Sightseeing Flight☐ Yes ☒ No**Air Medical Flight**☐ Yes ☒ No**AIRPORT INFORMATION (Fill in if accident/incident occurred on approach, landing, takeoff, departure, or within 3 miles of an airport)**

Airport Name: _____

Distance From Airport Center: _____ sm

Airport Identifier: _____

Direction From Airport: _____ degrees true

Proximity to Airport: ☐ Off Airport/Airstrip ☐ On Airport/Airstrip ☐ N/A

Airport Elevation: _____ ft. msl

Runway Information

Runway ID: _____ (L/R/C) Length: _____ ft Width: _____ ft

Runway/Landing Surface (Check all that apply)

- ☐ Asphalt ☐ Grass/Turf ☐ Macadam ☐ Water
☐ Concrete ☐ Gravel ☐ Metal/Wood
☐ Dirt ☐ Ice ☐ Snow ☐ Unknown

Condition of Runway/Landing Surface (Check all that apply)

- ☐ Dry ☐ Snow-Compacted ☐ Water-Calm
☐ Holes ☐ Snow-Crusted ☐ Water-Choppy
☐ Ice Covered ☐ Snow-Dry ☐ Water-Glassy
☐ Rough ☐ Snow-Wet ☐ Wet
☐ Rubber Deposits ☐ Soft
☐ Slush-Covered ☐ Vegetation ☐ Unknown

Approach/Departure Segment (Select one)

- ☐ Taxi ☐ VFR Departure ☐ On Instrument Approach ☐ Downwind ☐ Low Approach
☐ Takeoff ☐ IFR Departure Procedure/Clearance ☐ Landing ☐ Base ☐ Go Around
☐ Initial Climb ☐ Aborted Landing (after touchdown)
☐ Crosswind ☐ Unknown

IFR Approach (Check all that apply)

- ☐ None
- ☐ ADF/NDB ☐ PAR ☐ MLS ☐ Practice
☐ SDF ☐ Sidestep ☐ LDA ☐ GPS
☐ VOR/TVOR ☐ ILS ☐ ASR
☐ VOR/DME ☐ Localizer Only ☐ Visual
☐ TACAN ☐ LOC-back course ☐ Contact
☐ RNAV ☐ Circling
☐ Unknown

VFR Approach (Check all that apply)

- ☐ None
- ☐ Traffic Pattern ☐ Stop and Go
☐ Straight-In ☐ Touch and Go
☐ Valley/Terrain Following ☐ Simulated Forced Landing
☐ Go Around ☐ Forced Landing
☐ Full Stop ☐ Precautionary Landing
☐ Unknown

"FLIGHT CREWMEMBER 1" INFORMATION

"Flight Crewmember 1" Responsibilities at the Time of Accident/Incident

☒ Pilot
 ☐ Co-Pilot
 ☐ Student Pilot
 ☐ Flight Instructor
 ☐ Check Pilot
 ☐ Flight Engineer
 ☐ Other Flight Crew

"Flight Crewmember 1" was pilot flying ☒ Yes ☐ No

"Flight Crewmember 1" Identification

First Name: Joseph City of Residence: Wheaton
 Middle Initial: D State: IL ZIP: 60189
 Last Name: Dougherty Country: USA
 Age at time of Accident/Incident: 46 Date of Birth: [REDACTED] mm/dd/yyyy
 Certificate Number: [REDACTED]

Degree of Injury ☐ None ☐ Fatal ☒ Minor ☐ Unknown ☐ Serious	Seat Occupied ☐ Left ☒ Front ☐ Unknown ☐ Right ☐ Rear ☐ Center ☐ Single	Restraint Type <table style="width: 100%;"> <tr> <th style="text-align: left;">Available</th> <th style="text-align: left;">Used</th> </tr> <tr> <td> ☐ None ☐ Lap only ☐ 3-point ☒ 4-point ☐ 5-point ☐ Unknown </td> <td> ☐ None ☐ Lap only ☐ 3-point ☒ 4-point ☐ 5-point ☐ Unknown </td> </tr> </table>	Available	Used	☐ None ☐ Lap only ☐ 3-point ☒ 4-point ☐ 5-point ☐ Unknown	☐ None ☐ Lap only ☐ 3-point ☒ 4-point ☐ 5-point ☐ Unknown	Inflatable Restraints ☒ Not Installed ☐ Installed ☐ Not Deployed ☐ Deployed ☐ Unknown
Available	Used						
☐ None ☐ Lap only ☐ 3-point ☒ 4-point ☐ 5-point ☐ Unknown	☐ None ☐ Lap only ☐ 3-point ☒ 4-point ☐ 5-point ☐ Unknown						
Pilot Certificate(s) (Check all that apply) ☐ None ☒ Flight Instructor ☒ Commercial ☐ US Military ☐ Private ☐ Recreational ☒ Airline Transport ☐ Foreign ☐ Student ☐ Sport ☐ Flight Engineer		Medical Certificate Validity ☐ Without limitations/waivers ☐ Unknown ☒ With limitations/waivers ☐ N/A ☐ Special Issuance					
Principal Occupation ☒ Pilot ☐ Other ☐ Unknown	Medical Certificate ☐ None ☐ Class 3 ☒ Class 1 ☐ Driver's License (Sport Pilot only) ☐ Class 2 ☐ Unknown		Date of Last Medical <u>06/12/2019</u> mm/dd/yyyy				

Medical Certificate Limitations

Must wear corrective lenses

Medical Certificate Special Issuance

N/A

Date of Last Flight Review or Equivalent, Including FAR 121/135 Checks:

11/17/2018
mm/dd/yyyy

Flight Review Aircraft

Make: Dassault
 Model: 7X

Airplane Rating(s) (Check all that apply) ☐ None ☒ Single-Engine Land ☒ Single-Engine Sea ☒ Multiengine Land ☐ Multiengine Sea	Other Aircraft Rating(s) (Check all that apply) ☐ None ☐ Airship ☐ Balloon ☐ Glider ☐ Gyroplane ☐ Helicopter ☐ Powered Lift	Instrument Rating(s) (Check all that apply) ☐ None ☒ Airplane ☐ Helicopter ☐ Powered Lift	Instructor Rating(s) (Check all that apply) ☐ None ☒ Instrument Airplane ☒ Airplane Single-Engine ☐ Instrument Helicopter ☒ Airplane Multi-Engine ☐ Helicopter ☐ Gyroplane ☐ Glider ☐ Powered Lift ☐ Sport
Type Ratings BE-400: CE-750: DA-7X: LR-JET: MU-300			Student Endorsements (Include dates) N/A

Flight Time (Enter appropriate number of hours in each box)	All Aircraft	This Make & Model	Airplane Single Engine	Airplane Multiengine	Night	Instrument		Rotorcraft	Glider	Lighter Than Air
						Actual	Simulated			
Total Time	11,028	14	3,609	7,318	1,498	722	249	0	4	0
Pilot in Command (PIC)	8,924	14	3,533	5,257				0	3	0
Time as Instructor	1,544	0						0	0	0
This Make/Model					0	0	0			
Last 90 Days	95	6	34	61	6	7	0	0	0	0
Last 30 Days	39	5	12	27	4	2	0	0	0	0
Last 24 Hours	1	1	1	0	0	0	0	0	0	0

"FLIGHT CREWMEMBER 2" INFORMATION

"Flight Crewmember 2" Responsibilities at the Time of Accident/Incident

☐ Pilot
 ☐ Co-Pilot
 ☐ Student Pilot
 ☐ Flight Instructor
 ☐ Check Pilot
 ☐ Flight Engineer
 ☐ Other Flight Crew

"Flight Crewmember 2" was pilot flying ☐ Yes ☐ No

"Flight Crewmember 2" Identification

First Name: _____ City of Residence: _____
 Middle Initial: _____ State: _____ ZIP: _____
 Last Name: _____ Country: _____
 Age at time of Accident/Incident: _____ Date of Birth: _____ mm/dd/yyyy
 Certificate Number: _____

Degree of Injury ☐ None ☐ Fatal ☐ Minor ☐ Unknown ☐ Serious	Seat Occupied ☐ Left ☐ Front ☐ Unknown ☐ Right ☐ Rear ☐ Center ☐ Single	Restraint Type <table style="width: 100%;"> <tr> <th style="text-align: left;">Available</th> <th style="text-align: left;">Used</th> </tr> <tr> <td>☐ None</td> <td>☐ None</td> </tr> <tr> <td>☐ Lap only</td> <td>☐ Lap only</td> </tr> <tr> <td>☐ 3-point</td> <td>☐ 3-point</td> </tr> <tr> <td>☐ 4-point</td> <td>☐ 4-point</td> </tr> <tr> <td>☐ 5-point</td> <td>☐ 5-point</td> </tr> <tr> <td>☐ Unknown</td> <td>☐ Unknown</td> </tr> </table>	Available	Used	☐ None	☐ None	☐ Lap only	☐ Lap only	☐ 3-point	☐ 3-point	☐ 4-point	☐ 4-point	☐ 5-point	☐ 5-point	☐ Unknown	☐ Unknown	Inflatable Restraints ☐ Not Installed ☐ Installed ☐ Not Deployed ☐ Deployed ☐ Unknown				
Available	Used																				
☐ None	☐ None																				
☐ Lap only	☐ Lap only																				
☐ 3-point	☐ 3-point																				
☐ 4-point	☐ 4-point																				
☐ 5-point	☐ 5-point																				
☐ Unknown	☐ Unknown																				
Pilot Certificate(s) <i>(Check all that apply)</i> <table style="width: 100%;"> <tr> <td>☐ None</td> <td>☐ Flight Instructor</td> <td>☐ Commercial</td> <td>☐ US Military</td> </tr> <tr> <td>☐ Private</td> <td>☐ Recreational</td> <td>☐ Airline Transport</td> <td>☐ Foreign</td> </tr> <tr> <td>☐ Student</td> <td>☐ Sport</td> <td>☐ Flight Engineer</td> <td></td> </tr> </table>		☐ None	☐ Flight Instructor	☐ Commercial	☐ US Military	☐ Private	☐ Recreational	☐ Airline Transport	☐ Foreign	☐ Student	☐ Sport	☐ Flight Engineer		Medical Certificate Validity <table style="width: 100%;"> <tr> <td>☐ Without limitations/waivers</td> <td>☐ Unknown</td> </tr> <tr> <td>☐ With limitations/waivers</td> <td>☐ N/A</td> </tr> <tr> <td>☐ Special Issuance</td> <td></td> </tr> </table>		☐ Without limitations/waivers	☐ Unknown	☐ With limitations/waivers	☐ N/A	☐ Special Issuance	
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☐ None	☐ Class 3																				
☐ Class 1	☐ Driver's License (Sport Pilot only)																				
☐ Class 2	☐ Unknown																				

Medical Certificate Limitations

Medical Certificate Special Issuance

Date of Last Flight Review or Equivalent, Including FAR 121/135 Checks: _____ mm/dd/yyyy

Flight Review Aircraft

Make: _____
Model: _____

Airplane Rating(s) <i>(Check all that apply)</i> ☐ None ☐ Single-Engine Land ☐ Single-Engine Sea ☐ Multiengine Land ☐ Multiengine Sea	Other Aircraft Rating(s) <i>(Check all that apply)</i> ☐ None ☐ Airship ☐ Balloon ☐ Glider ☐ Gyroplane ☐ Helicopter ☐ Powered Lift	Instrument Rating(s) <i>(Check all that apply)</i> ☐ None ☐ Airplane ☐ Helicopter ☐ Powered Lift	Instructor Rating(s) <i>(Check all that apply)</i> <table style="width: 100%;"> <tr> <td> ☐ None ☐ Airplane Single-Engine ☐ Airplane Multi-Engine ☐ Gyroplane ☐ Powered Lift </td> <td> ☐ Instrument Airplane ☐ Instrument Helicopter ☐ Helicopter ☐ Glider ☐ Sport </td> </tr> </table>	☐ None ☐ Airplane Single-Engine ☐ Airplane Multi-Engine ☐ Gyroplane ☐ Powered Lift	☐ Instrument Airplane ☐ Instrument Helicopter ☐ Helicopter ☐ Glider ☐ Sport
☐ None ☐ Airplane Single-Engine ☐ Airplane Multi-Engine ☐ Gyroplane ☐ Powered Lift	☐ Instrument Airplane ☐ Instrument Helicopter ☐ Helicopter ☐ Glider ☐ Sport				

Type Ratings

Student Endorsements *(Include dates)*

Flight Time <i>(Enter appropriate number of hours in each box)</i>	All Aircraft	This Make & Model	Airplane Single Engine	Airplane Multiengine	Night	Instrument		Rotorcraft	Glider	Lighter Than Air
						Actual	Simulated			
Total Time										
Pilot in Command (PIC)										
Time as Instructor										
This Make/Model										
Last 90 Days										
Last 30 Days										
Last 24 Hours										

ADDITIONAL FLIGHT CREWMEMBERS (Exclusive of cabin crew, complete the following information)						
Crew Name and Address			Seat Occupied		Injury	
First Name: _____ City of Residence: _____ Middle Initial: _____ State: _____ ZIP: _____ Last Name: _____ Country: _____			☐ Left ☐ Front ☐ Center ☐ Rear ☐ Right ☐ Single ☐ Unknown ☐ Unknown		☐ None ☐ Minor ☐ Serious ☐ Fatal ☐ Unknown	
Pilot Certificate(s) (Check all that apply) ☐ None ☐ Private ☐ Student ☐ Flight Instructor ☐ Recreational ☐ Sport ☐ Commercial ☐ Airline Transport ☐ Flight Engineer ☐ US Military ☐ Foreign			Restraint Type: Available ☐ None ☐ Lap Only ☐ 3-point ☐ 4-point ☐ 5-point ☐ Unknown Used ☐ None ☐ Lap Only ☐ 3-point ☐ 4-point ☐ 5-point ☐ Unknown		Inflatable Restraints ☐ Not Installed ☐ Installed ☐ Not Deployed ☐ Deployed ☐ Unknown	
Type Rating/Endorsement for Accident/Incident Aircraft? ☐ Yes ☐ No		Total Flight Time at the Time of this Accident/Incident: _____ hrs				
Crew Name and Address			Seat Occupied		Injury	
First Name: _____ City of Residence: _____ Middle Initial: _____ State: _____ ZIP: _____ Last Name: _____ Country: _____			☐ Left ☐ Front ☐ Center ☐ Rear ☐ Right ☐ Single ☐ Unknown ☐ Unknown		☐ None ☐ Minor ☐ Serious ☐ Fatal ☐ Unknown	
Pilot Certificate(s) (Check all that apply) ☐ None ☐ Private ☐ Student ☐ Flight Instructor ☐ Recreational ☐ Sport ☐ Commercial ☐ Airline Transport ☐ Flight Engineer ☐ US Military ☐ Foreign			Restraint Type: Available ☐ None ☐ Lap Only ☐ 3-point ☐ 4-point ☐ 5-point ☐ Unknown Used ☐ None ☐ Lap Only ☐ 3-point ☐ 4-point ☐ 5-point ☐ Unknown		Inflatable Restraints ☐ Not Installed ☐ Installed ☐ Not Deployed ☐ Deployed ☐ Unknown	
Type Rating/Endorsement for Accident/Incident Aircraft? ☐ Yes ☐ No		Total Flight Time at the Time of this Accident/Incident: _____ hrs				
PASSENGER(S) / OTHER PERSONNEL (Include cabin crew; continue on separate sheet if necessary)						
Name and Address		Seat	Injury	Restraint Type		Inflatable Restraints
First Name: _____ City : _____ Middle Initial: _____ State: _____ ZIP: _____ Last Name: _____ Country: _____ ☐ Crew ☐ Passenger ☐ Other		☐ Left ☐ Center ☐ Right ☐ Unknown Row: _____	☐ None ☐ Minor ☐ Serious ☐ Fatal ☐ Unknown	Available ☐ None ☐ Lap Only ☐ 3-point ☐ 4-point ☐ 5-point ☐ Unknown Used ☐ None ☐ Lap Only ☐ 3-point ☐ 4-point ☐ 5-point ☐ Unknown	☐ Not Installed ☐ Installed ☐ Not Deployed ☐ Deployed ☐ Unknown	☐ Under 5 years <i>If Under 5,</i> ☐ Child Restraint ☐ Lap-Held ☐ Unknown
First Name: _____ City : _____ Middle Initial: _____ State: _____ ZIP: _____ Last Name: _____ Country: _____ ☐ Crew ☐ Passenger ☐ Other		☐ Left ☐ Center ☐ Right ☐ Unknown Row: _____	☐ None ☐ Minor ☐ Serious ☐ Fatal ☐ Unknown	Available ☐ None ☐ Lap Only ☐ 3-point ☐ 4-point ☐ 5-point ☐ Unknown Used ☐ None ☐ Lap Only ☐ 3-point ☐ 4-point ☐ 5-point ☐ Unknown	☐ Not Installed ☐ Installed ☐ Not Deployed ☐ Deployed ☐ Unknown	☐ Under 5 years <i>If Under 5,</i> ☐ Child Restraint ☐ Lap-Held ☐ Unknown
First Name: _____ City : _____ Middle Initial: _____ State: _____ ZIP: _____ Last Name: _____ Country: _____ ☐ Crew ☐ Passenger ☐ Other		☐ Left ☐ Center ☐ Right ☐ Unknown Row: _____	☐ None ☐ Minor ☐ Serious ☐ Fatal ☐ Unknown	Available ☐ None ☐ Lap Only ☐ 3-point ☐ 4-point ☐ 5-point ☐ Unknown Used ☐ None ☐ Lap Only ☐ 3-point ☐ 4-point ☐ 5-point ☐ Unknown	☐ Not Installed ☐ Installed ☐ Not Deployed ☐ Deployed ☐ Unknown	☐ Under 5 years <i>If Under 5,</i> ☐ Child Restraint ☐ Lap-Held ☐ Unknown
First Name: _____ City : _____ Middle Initial: _____ State: _____ ZIP: _____ Last Name: _____ Country: _____ ☐ Crew ☐ Passenger ☐ Other		☐ Left ☐ Center ☐ Right ☐ Unknown Row: _____	☐ None ☐ Minor ☐ Serious ☐ Fatal ☐ Unknown	Available ☐ None ☐ Lap Only ☐ 3-point ☐ 4-point ☐ 5-point ☐ Unknown Used ☐ None ☐ Lap Only ☐ 3-point ☐ 4-point ☐ 5-point ☐ Unknown	☐ Not Installed ☐ Installed ☐ Not Deployed ☐ Deployed ☐ Unknown	☐ Under 5 years <i>If Under 5,</i> ☐ Child Restraint ☐ Lap-Held ☐ Unknown

FLIGHT ITINERARY INFORMATION

Last Departure Point Airport ID: <u>KUGN</u> City: <u>Waukegan</u> State: <u>Illinois</u> Country: <u>USA</u>	Time of Departure Time: <u>2037</u> Time Zone: <u>UTC</u>	Destination Airport ID: <u>KARR</u> City: <u>Sugar Grove</u> State: <u>Illinois</u> Country: <u>USA</u>	Type Flight Plan Filed ☒ None ☐ VFR/IFR ☐ Company VFR ☐ IFR ☐ Military VFR ☐ Unknown ☐ VFR Activated? ☐ Yes ☐ No ☐ Unknown
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Type of ATC Clearance/Service (Check all that apply)			
☐ None	☐ Special VFR	☐ Special IFR	☐ VFR Flight Following
☒ VFR	☐ IFR	☐ VFR On Top	☐ Traffic Advisory
		☐ Cruise	☐ Unknown / NA

Airspace where the accident/incident occurred (Check all that apply)			Altitude of In-Flight Occurrence: <u>2500</u> ft msl
☐ Class A	☒ Class G	☐ Military Operations Area (MOA)	☐ Special
☐ Class B	☐ Demo Area	☐ Airport Advisory Area	☐ Air Traffic Control Area
☐ Class C	☐ Warning Area	☐ Jet Training Area	☐ Unknown
☐ Class D	☐ Prohibited Area	☐ TRSA	
☒ Class E	☐ Restricted Area	☐ FAR 93	

WEATHER INFORMATION AT THE ACCIDENT/INCIDENT SITE

Source of Pilot Weather Information (Check all that apply)	Weather Observation Facility
☒ National Weather Service ☐ Flight Service Station ☐ TV/Radio ☒ Automated Report ☐ Commercial Weather Service (DUATS) ☒ On-Board Weather	Facility ID: <u>KARR</u> Observation Time: <u>2052</u> Time Zone: <u>UTC</u> Distance from Accident Site: <u>8</u> nm Direction from Accident Site: <u>315</u> degrees true
☐ Company ☐ Military ☒ Internet ☐ None ☐ Unknown	

Basic Conditions ☒ VMC ☐ IMC ☐ Unknown	Light Condition ☐ Dawn ☐ Dusk ☐ Dark Night ☐ Unknown ☒ Day ☐ Night ☐ Bright Night
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Sky/Lowest Cloud Condition ☒ Clear ☐ Thin Broken ☐ Few ☐ Thin Overcast ☐ Partial Obscuration ☐ Unknown ☐ Scattered Lowest Cloud Condition Height _____ ft agl	Ceiling ☒ None (Clear) ☐ Obscured ☐ Broken ☐ Indefinite ☐ Overcast ☐ Unknown Ceiling Height _____ ft agl	Temperature: <u>28</u> (C) or <u>82</u> (F) Dew Point: <u>11</u> (C) or <u>52</u> (F) Altimeter Setting: <u>30.04</u> in. Hg or <u>1017</u> MB
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Wind Direction ☐ Variable -or- Direction: <u>340</u> degrees true	Wind Speed ☐ Calm ☐ Light and Variable -or- Speed: <u>5</u> kts	Wind Gusts ☒ Not Gusting -or- Speed: _____ kts	Visibility <u>2 at KARR</u> miles RVR: _____ feet RVV: _____ miles Density Altitude: <u>2524 at touch</u> ft
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Intensity of Precipitation ☐ Light ☐ Moderate ☐ Heavy ☒ N/A ☐ Unknown	Type of Precipitation (Check all that apply)	Restriction to Visibility (Check all that apply)
	☒ None ☐ Drizzle ☐ Freezing Rain ☐ Rain ☐ Ice Pellets ☐ Snow Shower ☐ Snow ☐ Snow Pellets ☐ Ice Pellets Shower ☐ Hail ☐ Snow Grains ☐ Freezing Drizzle ☐ Rain Showers ☐ Ice Crystals	☐ None ☐ Fog ☐ Blowing Dust ☐ Ground Fog ☐ Blowing Sand ☒ Haze ☐ Blowing Snow ☐ Ice Fog ☐ Blowing Spray ☐ Smoke ☐ Dust ☐ Unknown

Icing Forecast	Icing Actual	Turbulence																																						
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NOTAMs (D and FDC), AIRMETs, SIGMETs, PIREPs in effect at the time of the accident/incident:

UGN RWY 14/32 CLSD

UGN OBST TOWER LGT (ASR 1278207) 422635.70N0874903.50W (2.6NM ENE UGN) 909.8FT (317.9FT AGL) OUT OF SERVICE

UGN TWY C BTN NORTH RAMP AND TWY C3 CLSD



DAMAGE TO AIRCRAFT AND OTHER PROPERTY**Aircraft Damage**

- ☐ None ☒ Substantial
☐ Minor ☐ Destroyed
 ☐ Unknown

Aircraft Fire

- ☒ None ☐ Both Ground and In-Flight
☐ In-Flight ☐ Fire at Unknown Time
☐ On-Ground ☐ Unknown

Aircraft Explosion

- ☒ None ☐ Both Ground and In-Flight
☐ In-Flight ☐ Explosion at Unknown Time
☐ On-Ground ☐ Unknown

Description of Damage to Aircraft and Other Property (Use additional sheet if necessary)

Aircraft was damaged on landing roll out during collision with a pickup truck and again during collision with the interstate median's wire rope safety barrier. Damage include fuselage nose section, right side of main wing carry-through spar, left and right wing and winglets, canard wing, elevators, ailerons. The damage resulted from both collisions, but mostly from the aircraft revolving 360 degrees while in contact with the median's wire rope safety barrier. While I do not believe the wire rope safety barrier was damaged, one pole mounted roadway edge reflector was damaged.

The other vehicle involved in the collision, a GMC Canyon pickup truck, received minor damage (as reported by State Police).

**NARRATIVE HISTORY OF FLIGHT** (Please type or print in ink)

Describe what occurred in chronological order, including circumstances leading to and nature of accident/incident. Describe terrain and include wreckage distribution sketch if pertinent. Attach extra sheets if needed. State departure time and location, services obtained, and intended destination. Provide as much detail as possible.

On Monday July 8th, 2019 I operated, a Knight-Wilcox Varieze S/N 43, N112EZ registered to myself, Joseph D. Dougherty, from KUGN to the intended destination of KARR.

Prior to departure, I reviewed weather, NOTAMs, and TFR's, removed covers, performed aircraft preflight inspection and removed the aircraft from the hangar. The aircraft was last topped off with fuel on the 6th of July at 8DI (New Holstein, WI) and had flown approximately 1.6 hours since, (8D1-KARR-KUGN). The fuselage tank was full (2.5 gallons) and the wings contained approximately 15.2 gallons. Totalling about 3.2 hours of fuel remaining. The flight home was planned .4 hours flight with 3.4 gallons consumption. Planned landing fuel was 14.3 gallons, 2.8 hours of fuel remaining. Weight and balance checked OK near center of CG range and a takeoff weight of 1027 pounds under the MTOW of 1110.

Departure from KUGN was normal at 2037 UTC (KUGN 081955Z 08007 KT 10 SM CLR 22/13 A3007) Enroute cruise at 2500' MSL was normal, flight visibilities decreased from 10SM near KUGN to observed 4SM at point of initial contact to KARR ATC Tower. KARR was changing ATIS. I called the KARR ATC Tower and requested landing, KARR advised the field IFR (KARR 082052Z 34005 2SM HZ CLR 28/11 A3004). I requested SVFR, KARR ATC advised to remain clear as they had an IFR arrival. I told KARR ATC I would hold northwest of the field and requested they advise me when they were ready for my arrival. I turned the aircraft to a west heading, and made a normal reduction of power to about 1900 RPM for holding. Over the next minute the airspeed decreased as desired to approximately 93 KIAS (per GPS data) at approximately 2500' MSL. At approximately 2059 UTC the engine stopped rotating.

The aircraft, as designed by Burt Rutan, is a very lightweight and simple aircraft with no electrical charging system and no electric engine starter motor. I declared an emergency to KARR ATC tower, pitched over to approximately 45 degrees nose down beginning the Complete Power Loss in Flight checklist items, in an attempt to increase airspeed to cause the engine to rotate. (Rutan Canard Pusher news letters state it is best to perform a steep dive to increase airspeed most quickly for a given loss in altitude). I dove to the lowest altitude I felt I could make a safe recovery.

Upon leveling I had an estimated 165 KIAS (per GPS data) at approximately 360' AGL (per GPS data). The restart attempt was not successful. I had already made an alignment maneuver with I-88. Now, as the aircraft decelerated, I used about 30 seconds to evaluate the best emergency landing site. I normally would plan to land in an open field, but noticing what I believed to be a soybean fields, and remembering our recent heavy rainfalls, I believed the surface might allow the aircraft's nose gear to fail, break apart the nose, and nose over the aircraft - causing leg and neck injury and/or death.

Looking back to I-88, vehicles were spaced at approximately 300' intervals which would allow a landing on the Interstate in between vehicles. In my opinion, I-88 was the safest available emergency landing site.

I leveled the aircraft at about 15' AGL and began decelerating to the landing pitch attitude. I flew above two vehicles while waiting for the aircraft's energy state to be correct. A GMC Canyon pickup truck was ahead of me. I considered overflying that vehicle, but did not believe that the aircraft had the energy to fly past safely. I elected to land the aircraft behind the vehicle at approximately 2100 UTC.

I touched down at an estimated 78 KIAS (per GPS data), promptly de-rotated, and initiated maximum braking. My closure rate with the vehicle was decreasing nicely, and it appeared our speeds would become equal roughly abeam the vehicle. Unfortunately, due to pole mounted roadway edge reflectors, inadequate spacing existed and I could not come abeam the vehicle's left side. Keeping the left wingtip as close as possible to the reflectors, I hoped the driver might notice my approach and move several feet to the right, however, the vehicle did not alter course.

My right hand wingtip contacted the vehicle. This contact produced a right yawing motion causing my fuselage to contact the vehicle's left side. I believe the forward canard wing detached from the aircraft at this time. The yaw angle and direction of travel then changed some.



RECOMMENDATION (How could this accident/incident have been prevented?)

Operator/Owner Safety Recommendation

- Replace these MA3 series carburetors which are prone to carburetor icing with throttle body injectors (TBI's). Several TBI's with proven good performance exist and many are much less susceptible to carburetor icing. These TBI's are available and the pricing is comparable.
- Despite Burt Rutan's insistence in the Varieze plans, and continued insistence in the canard pusher newsletters for the purpose of minimizing aircraft weight, do not operate the Varieze or similar aircraft without the installation of an electric starter motor. Electric starter motors and contemporary LiFePo chemistry batteries are much lighter now than those in use at the inception of the Varieze program, and if Mr. Rutan were still involved in the program now, he might very well recommend installation to mitigate the likelihood of any accidents following engine rotational stoppage.

MECHANICAL MALFUNCTION/FAILURE (If more space is needed, continue on separate sheet)Was there Mechanical Malfunction/Failure? ☒ Yes ☐ No

(If yes, list the name of the part, manufacturer, part no., serial no., and describe the failure.)

Continental C-85-12 S/N 20202-6-12S, possible malfunction/failure causing inhibited engine rotation.

Following an interruption of the combustion process, the engine stopped rotating for an unknown reason, which may include possible mechanical malfunction or failure as follows;

The aircraft was holding at approximately 93 KIAS (107 mph) per recorded GPS data, well above both the published Propeller minimum wind-milling speed of 61 knots (70 mph) and the published propeller recommended wind-milling speed of 80 knots (92 mph). While I suspect carburetor icing may have initially caused the interruption of the combustion process, the engine should not have stopped rotating. Continued

Total Time/Cycles On Part

Unknown HoursUnknown Cycles

Time Since This Part Inspected/Overhauled

14.7 Hours**FUEL & SERVICES INFORMATION****Fuel on Board at Last Takeoff**

(Convert from pounds, as necessary)

17.7 gallons (3.2 hours) Gallons**Fuel Type**☐ 80/87☐ 115/145☐ Jet B☐ Other, specify _____☒ 100 Low Lead☐ Jet A☐ JP8☐ 100/130☐ Jet A-1☐ Automotive**Other Services, if Any, Prior to Departure**

The aircraft was last serviced on July 6th, 2019 at 8D1 (New Holstein, WI airport) with all three tanks topped off with 100LL. No services from KUGN Signature Aviation were obtained for the accident flight departing KUGN (Waukegan, IL)

EVACUATION OF AIRCRAFTWas an emergency evacuation of the aircraft performed? ☒ Yes ☐ No**Method of Exit** – Describe how the occupants exited and how many occupants evacuated each location

I opened the canopy and released the restraint system and headset. Due to my belief at the time that my foot was fractured, I asked for and received assistance from helpful bystanders who had already approached the aircraft. We moved away from the aircraft as rapidly as possible due to the presence of fuel odor.

OTHER AIRCRAFT – COLLISION (If air or ground collision occurred, complete this section for other aircraft)

Aircraft Registration Number

Manufacturer: _____

Model: _____

Damage to Other Aircraft☐ Destroyed☐ Minor☐ Substantial☐ None**Registered Owner of Other Aircraft**

Name: _____

City: _____

State: _____ ZIP: _____

Country: _____

Pilot of Other Aircraft

Name: _____

City: _____

State: _____ ZIP: _____

Country: _____

ADDITIONAL INFORMATION (Please type or print in ink)

Use this space if additional space is needed for any answers.

I believe the cause of accident to be carburetor icing initially interrupting the combustion process, followed by engine rotational stoppage for an unknown reason;

The engine was operating normally until 2059 UTC when at approximate 93 KIAS (107 mph) per recorded GPS data at approximately 2500' MSL when the engine abruptly stopped rotating. I suspect most likely the combustion process was interrupted by carburetor icing for the following three reasons;

- The reported weather at KARR at 082052 (7 minutes prior to the engine failure) was 2SM HZ CLR 28/11 A3004. using a normal lapse rate the OAT at 2500' MSL (the altitude of the aircraft), was 75.3 F with a reported dew point of 52 F. The engine had been at cruise power and then at a lower approach or holding power setting of 1900 RPM, for the one to two minutes prior to engine failure. The carburetor icing chart places these power settings in the Icing during Glide and Cruise Power to Serious Icing at Glide Power range.

[Insert - Chart of carburetor icing atmospheric conditions]

- I had experienced carburetor icing in the accident aircraft two days prior on a 14CFR91 flight from KARR to 8D1. This was experienced in cruise flight at wide open throttle (WOT) and was observed as a reduction in RPM. Operation of the carburetor heat control and mixture resulted in restored RPM.

- The MA3 series of carburetors are well known to experience carburetor icing. I have experienced carburetor icing with this series of carburetors many times including two days prior to the accident flight in the accident aircraft, along with other aircraft types.

Once the carburetor icing or any other reason caused the interruption of the combustion process, the engine should have continued to rotate due to aerodynamic forces. This I why I suspect possible mechanical malfunction/failure.

The Vari-Eze Owner's Manual (Section IV of the Varieze manufacturing manual) third edition - December 1979 published by Rutan Aircraft Factory Mojave, CA. and Canard Pusher newsletters (CP-60) listed several speeds associated with Propeller wind-milling and propeller restart. These values were incorporated into instrument panel placards and the Varieze S/N 43 specific AFM carried on the accident aircraft;

Propeller minimum wind-milling speed.....61 knots (70 mph)

Propeller recommended wind-milling speed.....80 knots (92 mph)

Propeller restart speed (prop stopped).....130 knots (150 mph)

The aircraft was holding at approximately 93 KIAS (107 mph) per recorded GPS data, well above both the Propeller minimum wind-milling speed of 61 knots (70 mph) and the propeller recommended wind-milling speed of 80 knots (92 mph). Aerodynamic forces at the approximate 93 KIAS should have kept the propeller rotating. Continued rotation would have permitted the pilot to possibly correct for a carburetor icing condition.

During the execution of the Complete Power Loss in Flight checklist procedure, the aircraft was pitched down steeply in accordance with Rutan flight tested emergency procedure and the on board checklist to increase airspeed in an attempt to restart the rotation of the engine. The indicated speed reached was approximately 165 KIAS (189 mph) per GPS data. This airspeed was well in excess of the published Propeller restart speed (prop stopped) of 130 knots (150 mph), and should have produced more than adequate aerodynamic force to cause the stopped propeller to again rotate, however, engine rotation did not occur.

The above described information is the reason I believe the engine rotational stoppage was due initially to carburetor icing interrupting the combustion process, followed by the engine's failure to rotate for an unknown reason.

I HEREBY CERTIFY THAT THE ABOVE INFORMATION IS COMPLETE AND ACCURATE TO THE BEST OF MY KNOWLEDGE

Date of this Report

07/15/2019

mm/dd/yyyy

Name of Pilot/Operator: Joseph D. Dougherty

Signature: _____

-- or -- ☒ Check here to electronically sign this document

If a Person Other than Pilot/Operator is Filing Report

Name: _____

Title: _____

Signature: _____

-- or -- ☐ Check here to electronically sign this document

FOR NTSB USE ONLY

NTSB Accident/Incident No.
CEN19LA216

Reviewed by NTSB Regional Office
CEN Denver

Name of Investigator
LINDBERG

Date Report Received
7/16/19

Full Text from NTSB 6120.1 Form

NOTAM Section

UGN RWY 14/32 CLSD

UGN OBST TOWER LGT (ASR 1278207) 422635.70N0874903.50W (2.6NM ENE UGN) 909.8FT (317.9FT AGL) OUT OF SERVICE

UGN TWY C BTN NORTH RAMP AND TWY C3 CLSD

ARR OBST TOWER LGT (ASR 1210345) 414745.80N0882730.70W (1.6NM NNE ARR) 895.0FT (189.0FT AGL) OUT OF SERVICE

ARR TWY C SOUTH OF TWY P CLSD

ARR TWY C NORTH OF RWY 09/27 CLSD

ARR RWY 18/36 CLSD

Narrative History of Flight Section

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Upon leveling I had an estimated 165 KIAS (per GPS data) at approximately 360' AGL (per GPS data). The restart attempt was not successful. I had already made an alignment maneuver with I-88. Now, as the aircraft decelerated, I used about 30 seconds to evaluate the best emergency landing site. I normally would plan to land in an open field, but noticing what I believed to be a soybean fields, and remembering our recent heavy rainfalls, I believed the surface might allow the aircraft's nose gear to fail, break apart the nose, and nose over the aircraft - causing leg and neck injury and/or death.

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My right hand wingtip contacted the vehicle. This contact produced a right yawing motion causing my fuselage to contact the vehicle's left side. I believe the forward canard wing detached from the aircraft at this time. The yaw angle and direction of travel then sheared some or all of the landing gear from the aircraft. Absent some or all the landing gear, directional control was lost and the aircraft began yawing and drifting to the left. I impacted the median's wire rope safety barrier. Although deceleration forces were low and comfortable, this impact caused both substantial damage to the aircraft, and minor injury to my right foot. During the accident sequence, the aircraft rotated through roughly 360 degrees to the left, mostly while impacting the wire rope safety barrier, and came to rest on a west heading.

Per the Illinois State Police, the vehicle's driver was not injured and his vehicle sustained minor damage.

Several helpful people had stopped and gathered near the aircraft and assisted me exiting the aircraft. I exited as promptly as possible as fuel odor was present. I asked the people who assisted me to instruct others to remain well clear of the aircraft. One of the persons who assisted me, mistook a piece of fiberglass debris on my sock for a fracture and told me I had a fracture of my foot. While my foot was hurt, I asked for assistance walking so as to not further injure what I believed to be a fractured foot.

State police arrived and checked my drivers license and stated EMS was enroute. I presented my drivers license and asked whether FAA and NTSB had been notified to which he responded yes. I was transported to Mercy hospital in Aurora where foot x-ray revealed no fracture. A precautionary CT scan was interpreted by the Mercy hospital technician as possible brain hemorrhage. I was transported for observation to Good Samaritan hospital in Downers Grove where another CT scan was performed. The ER doctor at Good Samaritan reviewed the new CT scan and said the prior scan was in error, In fact, he

said what had likely been seen was the cross section of an artery. I received a letter stating no trauma of my head was observed. I was discharged and returned home that night.

Mechanical Malfunction/Failure Section

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During the execution of the Complete Power Loss in Flight checklist procedure, the aircraft was pitched down steeply in accordance with Rutan flight tested emergency procedure and the on-board checklist to increase airspeed in an attempt to restart the rotation of the engine. The indicated speed reached was approximately 165 KIAS (189 mph) per GPS data. This airspeed was well in excess of the published Propeller restart speed (prop stopped) of 130 knots (150 mph), and yet engine rotation did not occur.

Additional Information Section

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